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10/662,971

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06/12/2006

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EXAMINER

WILLOUGHBY, TERRENCE RONIQUÉ

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 06/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/662,971 | Applicant(s) PAPALLO ET AL. | |
| | Examiner Terrence R. Willoughby | Art Unit 2836 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/15/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-11 and 13-59 are rejected under 35 U.S.C. 102(e) as being unpatentable over by Qin et al. (6,411,865).

Regarding claim 1, Qin et al. (Figs. 9-11) discloses the claimed method of protecting a circuit having power switching devices, the method comprising: a defining characteristics of a zone of protection of the circuit; defining a protection matrix based at least in part upon said characteristics; and performing a zone protective function on said zone of protection using said protection matrix (Abstract and col. 8, ll. 23-38).

Regarding claims 2, 16, 38, 45, and 52, Qin et al. discloses the claimed said method of claims 1, 13, and 32 wherein said zone protective functions is a plurality of zone protective functions, each of said plurality of zone protective functions being performed on said zone of protection based at least in part upon said protection matrix (col. 3, ll. 41-52).

Regarding claims 3, 17, 26, 39, and 54 Qin et al. discloses the claimed said method of claims 1, 17, 23, 32, wherein said zone protective is based at least in part

upon electrical parameters (col. 2, ll. 23-32) of said zone of protection, said electrical parameter being communicated over a network (col. 1, ll. 13-16) to a microprocessor.

Regarding claims 4, 18, 27, 42, and 56 Qin et al. (Fig. 1) discloses the claimed said method of claims 3, 17, 27, 41, and 55 further comprising sensing said electrical parameters with a sensor (col. 3, ll. 1-4), communicating signals representative of said electrical parameters (col. 2, ll. 23-32) to a module (22-28), and communicating said signals to said microcomputer (20), wherein said module, said sensor and said microcomputer are communicatively coupled over said network (col. 1, ll. 13-16).

Regarding claims 5, 19, 37, and 51 Qin et al. discloses the claimed said method of claims 1, 13, 32, 46 further comprising: monitoring a topology of the circuit, said topology being based at least in part upon a status for each of the power switching devices in the circuit, said status being either opened or closed; defining said zone of protection based at least in part upon said topology, and adjusting said zone of protection based at least in part upon changes to said topology (col. 4, ll. 58-64; col. 3, ll. 33-40).

Regarding claims 6, 33, and 47 Qin et al. discloses the claimed said method of claims 1, 32, and 46 wherein the step of defining said characteristics comprises defining a plurality of combinations of states of the power switching devices in said zone of protection, each of said states being opened or closed (col. 4, ll. 58-64).

Regarding claims 7, 15, 34, and 48 Qin et al. discloses the claimed said method of claims 6, 13, 33, and 46 wherein the step of defining said characteristics further comprises defining power flow configurations for said zone of protection based upon

said plurality of combinations of said states of the power switching devices in said zone of protection (col. 3, ll. 41-52).

Regarding claim 8, Qin et al. discloses the claimed said method of claim 7, further comprising: defining a definition matrix (col. 6, ll. 60-61; col. 8, ll. 17-22) based at least in part upon said power flow configurations; and defining said protection matrix (Figs. 9-11 and col. 8, ll. 23-38) based at least in part in part upon said definition matrix.

Regarding claim 9, Qin et al. discloses the claimed said method of claim 6, further comprising: defining a zone state matrix (col. 6, ll. 54-61) based upon said plurality of combinations of said states of the power switching devices in said zone of protection (col. 3, ll. 41-52); and defining said protection matrix based at least in part upon said zone state matrix (col. 6, 61-67).

Regarding claims 10, 20, 29, 43, and 57 Qin et al. discloses the claimed said method of claims 6, 13, 23, 32, and 46 further comprising opening at least one of the power switching devices in said zone of protection based upon said protection function (col. 8, ll. 10-17).

Regarding claims 11, 21, 30, 40, and 53 Qin et al. discloses the claimed said method of claims 10, 20, 29, 39, 46 wherein a microprocessor is configured to operate each of the power switching devices in the circuit (col. 7, 60-65).

Regarding claim 13, Qin et al. discloses the claimed said method of protecting a circuit having switching devices, the method comprising: defining a plurality of combinations of states of devices disposed in a zone of protection of the circuit, each of said states being either opened or closed (col. 4, ll. 58-64); defining characteristics of

said zone of protection based at least in part upon said plurality of combinations of said states of the power switching devices disposed in said zone of protection, said characteristics being the actual and possible characteristics (col. 3, ll. 41-52); and performing a zone protective function on said zone of protection based at least in part upon said characteristics (abstract).

Regarding claims 14, 36, and 50 Qin et al. discloses the claimed said method of claims 13, 14, and 49 wherein said zone of protection is dynamic (col. 3, ll. 34-38; col. 4, ll. 61-64).

Regarding claim 23, Qin et al. discloses the claimed said method of protecting a circuit having power switching devices, the method comprising: defining a plurality of configurations for a zone of protection of the circuit, said plurality of configurations being actual and possible configurations (col. 3, ll. 41-52), said plurality of configurations being based at least in part upon states of the power switching devices disposed in said zone of protection, each of said states being either opened or close (col. 3, ll. 24-29);

defining a plurality of coefficients for a zone protective function based at least in part upon said plurality of configurations (col. 6, ll. 51-67);

determining a first topology (Fig. 6 and col. 6, ll. 26-30) for said zone of protection, said first topology being based upon a first status for each of the power switching devices disposed in said zone of protection, said first status being either opened or closed;

selecting at least one of said plurality of coefficients based upon said first topology; and performing said zone protective function on said zone of protection based

at least in part upon said at least one of said plurality of coefficients that has been selected (col. 4, ll. 58-64).

Regarding claim 24, Qin et al. discloses the claimed said method of claim 23, wherein the step of defining said plurality of coefficients (col. 6, ll. 51-67); comprises defining power flow paths for said zone of protection based upon said plurality of configurations.

Regarding claim 25, Qin et al. discloses the claimed said method of claim 23, wherein said zone protective function is a plurality of zone protective functions (col. 7, ll. 60-67 and col. 8, ll. 1-3), each of said plurality of zone protective functions being performed on said zone of protection based at least in part upon said plurality of coefficients (col. 6, ll. 51-67).

Regarding claim 28, Qin et al. (Fig. 7 and col. 6, ll. 30-41) discloses the claimed said method of claim 23, further comprising the steps of: monitoring a second topology of the circuit, said second topology being based at least in part upon a second status for each of the power switching devices in said circuit, said second status being either opened or closed; defining said zone of protection based at least in part upon said second topology; and adjusting said zone of protection based at least in part upon changes to second said topology (col. 8, ll. 52-59).

Regarding claims 32 and 46, Qin et al. (Fig. 1) discloses the claimed said protection system for coupling a circuit having power switching device and a zone of protection, the system comprising: a control processing unit (20) being communicatively couplable to the power switching devices (30-36) so that said control processing unit

can perform a zone protective function on said zone of protection based at least in part upon characteristics of said zone of protection, said characteristics being actual and possible characteristics (col. 2, ll. 24-33).

Regarding claims 35 and 49, Qin et al. (Fig. 1) discloses the claimed said system of claims 32 and 46, wherein said control processing unit (20) defines said zone of protection (col. 2, ll. 27-32).

Regarding claims 41 and 55, Qin et al. (Fig. 1) discloses the claimed said system of claims 39 and 54, wherein said control processing unit (20) receives parameter signals representative of electrical parameters of the circuit, and wherein said control processing unit opens the power switching devices if a fault is detected in the circuit (col. 7, ll. 60-67 and col. 8, ll. 1-3).

Regarding claim 59, Qin et al. (Fig. 1) discloses the claimed said system of claim 46, wherein said control processing unit (20) utilizes a protection matrix (col. 2, ll. 26-32), said protection matrix being defined at least in part by said characteristic of said zone of protection (col. 8, ll. 23-38).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12, 22, 31, 44, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qin et al. (US 6,411,865) as applied to claim 11 above, and in view of Matsko et al. (US 5,875,088).

Regarding claims 12, 22, 31, 44, and 58 Qin et al. discloses the claimed said method of claims 11, 20, 29, 44, and 46. Qin et al. does not disclose a dynamic delay time for opening said at least one of the power switching devices; and opening said at least one of the power switching devices after said dynamic time has elapsed.

However, Matsko et al. discloses a delay time (col. 1, ll. 27-45) for opening said at least one of the switching devices; and opening said at least one of the power switching device after said dynamic time has elapsed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a delay time for opening and closing separable contacts for a circuit breaker to improve zone interlocks for electrical switching devices.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrence R. Willoughby whose telephone number is 571-272-2725. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2836

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

5/24/06
TRW



6-8-06

STEPHEN W. JACKSON
PRIMARY EXAMINER